

CULTURAL ASPECTS OF COMPULSIVE BUYING IN EMERGING AND DEVELOPED ECONOMIES: A CROSS CULTURAL STUDY IN COMPULSIVE BUYING

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Abstract. *Although several studies focused on understanding of compulsive buying in developed countries, this phenomenon remains understudied in other parts of the world. This is rather surprising since there is an increasing interest in understanding shopping behavior of consumers in emergent markets due to the growing importance of these markets. The main reason for the limited attention to compulsive buying in emerging countries is the lack of cross-culturally validated scales.*

In response to these calls, this paper tests measurement invariance of two prominent compulsive buying scales—the Compulsive Buying Scale (CBS) and the Compulsive Buying Index (CBI) in Western (Spain and the Netherlands) and emerging (Russia and Turkey) economies. In case of lack of invariance the reasons in terms of socio-cultural factors and country conditions are explained.

The results establish the partial measurement invariance of the CBI but not the CBS. So, to study the antecedents and consequences of compulsive buying in cross-cultural contexts, the CBI is sufficient. The varying credit card ownership and usage, and different gender roles of women across countries appear to be the main reasons for lack of measurement invariance of the CBS. The percentages of compulsive buyers in emerging countries are lower than those in developed countries.

Key words: *compulsive buying, emerging countries, measurement invariance*

1. Introduction

Emerging markets have recently witnessed a rapid process of retail marketplace change: increase in the number of shopping centers/malls, more variety in retail shelves, increasing availability of global brands at marketplace. Furthermore, the purchasing

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power of consumers in emerging markets has increased. These changes might cause an increase in hedonic shopping value in emerging market consumers, which may result in an increase in the prevalence rate of compulsive buying behavior in these countries. Unfortunately, however, hardly any studies have been conducted on this topic in emerging markets. The main reason for the limited attention to compulsive buying behavior in emerging countries is the lack of cross-culturally validated scales.

Therefore, in this article we investigate the measurement invariance of compulsive buying scales that have been broadly used in Western countries. Various socio-cultural factors, country shopping landscape, country conditions, for instance availability and usability of a credit card, might influence the validity of scale items that measure compulsive buying. Therefore, in case of scale lack of invariance of the scale, we explain its reasons in terms of socio-cultural factors and country conditions. Additionally, we investigate whether and why compulsive buyers may face different consequences of their behavior in different countries. Finally, we compare the prevalence rate in emerging and developed countries. In our analysis we rely on data from Western (Spain and the Netherlands) and emerging (Russia and Turkey) economies.

Compulsive buying, or “chronic and repetitive purchasing that becomes a primary response to negative events or feelings” (Faber & O’Guinn, 1992, p. 459), is a prevalent, growing and destructive phenomenon that produces harmful outcomes for consumers and society. The importance of researching compulsive buying behavior is reflected in studies indicating a growing number of compulsive buyers worldwide. Compulsive buying behavior affects an estimated 2-8% of the general adult U.S. population (Black, 2001; Koran, Faber, Aboujaoude, Large, & Serpa, 2006), and its prevalence appears similar in other Western countries, such as Germany (Mueller et al., 2010), France (Lejoyeux, Mathieu, Embouazza, Huet, & Lequen 2007), and Great Britain (Dittmar & Drury, 2000). Compulsive buying appears to be a growing problem in Western countries (Neuner, Raab, & Reisch 2005). From 1990 to 2001, the proportion of compulsive buyers jumped from 5% to 8% in West Germany and from 1% to 7% in the former communist East Germany. Given the East and West Germany case, the prevalence of compulsive buying is likely to increase in the next decades in emerging countries as well.

The prevalence and increase of compulsive buying in different cultures suggest that it is not solely a Western problem, though sociocultural, environmental, and contextual factors may affect its development. Despite some recognition of the potential influence of contextual and cultural factors on compulsive buying (e.g., Neuner et al., 2005; O’Guinn & Faber, 2005), empirical tests have been hampered by a lack of cross-culturally validated instruments. Existing instruments, such as the Compulsive Buying Scale (CBS; Faber & O’Guinn, 1992) and the Compulsive Buying Index (CBI; Ridgway, Kukar-Kinney & Monroe, 2008), were developed and tested in wealthy Western societies (U.S. or Canada), but their cross-cultural invariance (e.g., Van de Vijver & Leung, 2000) has not yet been investigated in emerging countries. This gap threatens the validity of any cross-national comparisons using these instruments. For example, when scalar invariance is absent, a cut-off point used to indicate compulsive buying in one culture is not valid in another. Lack of measurement invariance of the scale

prevents any comparison of the relationships of the scale with other scales. Because the meaning of the construct is not necessarily the same across cultures, any cross-cultural comparison using the scale is invalid. With this study, we therefore examine whether the CBS and CBI, the two most prominent compulsive buying scales, are equivalent across emerging and developed economies.

The CBS is by far the most commonly used scale to measure compulsive buying (Ridgway et al., 2008). As a result, the current compulsive buying profile is mainly based on studies that use the CBS (see, e.g., Black, 1996; Kuzma & Black, 2006); it has been used to measure the prevalence of compulsive buyers, to identify antecedents and consequences of compulsive buying (Scherhorn, Reisch, & Raab, 1990; Faber & O'Guinn, 2008), and to discover psychiatric comorbidities (Black, Repertinger, Gaffney, & Gabel, 1998). Because the CBS was developed to identify severe cases of compulsive buying, its goal is to indicate people who should receive treatment to change their behavior. In contrast, the more recent CBI aims to measure "a consumer's *tendency* to be preoccupied with buying that is revealed through repetitive buying and lack of impulse control over buying" (Ridgway et al., 2008, p. 461). The CBI has several promising features, since it has been developed to overcome problems with existing compulsive buying scales. In particular, it defines and measures compulsive buying only in terms of underlying behavioral tendencies, and it allows for an expanded conceptualization of the construct by incorporating both obsessive-compulsive and impulse-control buying dimensions. Unlike other scales measuring compulsive buying behavior, the CBI avoids items reflecting consequences of compulsive buying. Eliminating the consequences of the behavior from measuring it is a crucial step to obtain etic scales (i.e. cross-culturally universal). Since consequences of compulsive buying might be experienced differently across developed and emerging countries, the CBI is highly likely more cross-cultural equivalent than the CBS scale.

The instruments developed in the United States might not be useful in other countries, specifically in emerging countries, to identify compulsive buying behavior for several reasons. The instruments may contain items on consequences that are not applicable in other cultural contexts and may have been developed with very limited samples (e.g., student samples) that are not reflective of the population, especially in other cultural settings. If this is the case, the scales may be invalid for use in other cultural settings and the resultant scores incomparable across cultural groups, even within the same country. In sum, the objectives of the current study are: establishing measurement invariance of two compulsive buying scales; explaining the reasons for lack of invariance, if that is present, in terms of socio-cultural factors and country conditions; and comparing the prevalence rate across in emerging and developed countries.

2. Culture and Measurement Invariance

While the knowledge of the role of psychological and physiological factors on compulsive buying is extensive due to a great deal of previous research, the understanding of the relationship between socio-cultural factors and compulsive

buying are rather limited (O'Guinn & Faber, 2005). Cultures differ in the nature of the boundaries between the person and the group: in some cultures people are more autonomous and in other cultures people are more embedded in groups (Schwartz, 2006). In autonomous cultures, mainly located in Europe and the U.S., people are encouraged to cultivate and express their own preferences and feelings; being unique is important and meaningful. In embedded cultures, mainly located in East Asia, social order and respect for tradition are valued and identifying with the group is important, as are shared goals. Such differences in values affect people's behavior. Norms imposed by the in-group are the main motivator for people in embedded societies and people try to emphasize their connectedness to the in-group. In autonomous societies, the self prevails over the group. People in more embedded societies are expected to keep harmonious relationships and may therefore be more motivated to suppress impulses. This doesn't mean that the impulsive tendencies are non-existent: Kacen and Lee (2002) found that although the impulse buying trait was present in Asian consumers, they engaged less in impulsive buying behavior. Gender roles, social expectations, and social norms in a country may also influence the prevalence of compulsive buying. Changing social dynamics in emerging countries might create a feeling of loneliness, alienation, depression, which might result in a wrong perception, compulsive buying as an escape solution, similar to consumers in developed countries. Before scale scores can be used in cross-cultural comparisons, their cross-cultural invariance (e.g., Van de Vijver & Leung, 2000) in other countries needs to be established. When there is no invariance, correlations between scales, let alone absolute scores on the scales, cannot be compared across countries. Existing instruments, such as the CBS and the CBI, were developed and tested in the U.S. (or Canada), but not in other countries. This gap threatens the validity of any cross-national comparisons using these instruments and the usability of these scales outside North America.

The more recent CBI has been developed to overcome some problems with existing scales for compulsive buying behavior such as CBS. One of the problems with the CBS is that it includes the consequent harm within the measure itself, which may limit the potential for invariance across cultures. Harm or adverse consequences should be classified as outcomes, rather than as a dimension of the instrument. It is likely that consequences of the behavior will be experienced differently by individuals in different cultural settings. Furthermore, the CBS is limited to a focus on the more severe aspects of the behavior, whereas the CBI incorporates two dimensions: the early symptoms (i.e., impulse buying), as well as the more severe aspects (i.e., obsessive-compulsive buying). Specifically, the CBS was developed to identify severe cases of compulsive buying and its aim is to indicate people who should receive treatment to change their behavior. In contrast, the CBI defines and measures compulsive buying only in terms of underlying behavioral tendencies, and it allows for an expanded conceptualization of the construct by incorporating both obsessive-compulsive and impulse-control dimensions.

In this study, we therefore examine whether the CBS and CBI, the two most prominent compulsive buying scales, are invariant across developed and emerging

economies. If we can establish the cross-cultural invariance of the CBS and CBI, we also test the scales' criterion validity in different cultures. For example, we may identify whether some known consequences of compulsive buying, such as financial difficulties, hiding, feeling guilty, or family arguments, emerge across cultures. We expect that the correlations of the compulsive scales with consequences and behaviors will be less strong in the more culturally embedded countries. The countries differ on the cultural value orientation autonomy versus embeddedness (Schwartz, 2006), where Russia and Turkey score relatively higher on embeddedness and Spain and the Netherlands on autonomy. The effects are expected to be strongest in culturally autonomous Western countries (the Netherlands and Spain), which are culturally and economically the most similar to the United States, the country where both the CBS and the CBI were developed.

3. Method

Participants

We collected data from women shopping at malls in large cities in four countries: Amsterdam (the Netherlands), Madrid (Spain), Moscow (Russia), and Ankara (Turkey), using the commonly employed mall-intercept sampling technique. In each country, we only collected data from women born and raised in that country. We focused on women as previous research has indicated that women are more prone to compulsive buying than are men, such that 80–95% of the compulsive buyers reported are women (Black, 2001). The sample sizes are 104, 167, 150, and 122 respondents in the Netherlands, Spain, Russia and Turkey, respectively. The mean ages of these respondents are 33.81 (SD = 13.36) in the Netherlands, 38.95 (SD = 15.91) in Spain, 37.3 (SD = 20.30) in Russia, and 34.24 (SD = 12.20) in Turkey.

Measures

The CBS consists of seven items; the CBI of six items allocated to two dimensions: impulsive buying and obsessive-compulsive buying. We list the CBS items in Table 1 and the CBI items in Table 2. In addition to measuring the CBS and CBI scales, we collected information about shopping frequency, the consequences of compulsive buying (e.g., financial difficulties), and demographic characteristics (e.g., age, education, income).

TABLE 1. Items in the CBS

| | |
|----|---|
| 1. | If I have any money left at the end of the pay period, I just have to spend it. |
| 2. | Felt others would be horrified if they knew of my spending habits. |
| 3. | Bought things even though I couldn't afford them. |
| 4. | Wrote a check when I knew I didn't have enough money in the bank to cover it. |
| 5. | Bought myself something in order to make myself feel better. |
| 6. | Felt anxious or nervous on days I didn't go shopping. |
| 7. | Made only the minimum payments on my credit cards. |

TABLE 2. Items and Dimensions of the CBI

| Items | Dimensions |
|--|-----------------------------|
| 1. My closet has unopened shopping bags in it. | Obsessive-compulsive buying |
| 2. Others might consider me as a “shopaholic.” | |
| 3. Much of my life centers around buying things. | |
| 4. I buy things I don’t need. | Impulsive buying |
| 5. I buy things I did not plan to buy. | |
| 6. I consider myself as an impulse purchaser. | |

The questionnaires were first developed in English and then translated into the native languages of each country by bilingual speakers following the common procedures in cross-cultural research; to ensure translation invariance other bilingual speakers then back-translated the questionnaires into English.

Procedures

To assess the cross-cultural invariance of the CBS and CBI instruments, we use multi-group confirmatory factor analysis with structural equation modeling (LISREL 8.8; Jöreskog & Sörbom, 1999). Considering the ordinal nature of the items, we use polychoric correlations. The CBI has a second-order factor structure with two constructs, so we impose an additional constraint of equal error variances for the two constructs to estimate the model. To estimate the model parameters, we use maximum likelihood.

For assessing cross-cultural measurement invariance, we followed the three nested, sequential steps as outlined in cross-cultural measurement literature (e.g., Van de Vijver & Leung, 2000). First, configural invariance means that the same construct gets measured in each country. We test for configural invariance by fitting the same hypothesized factor structure simultaneously in all four countries (Model 1). There is configural invariance when the same number of factors is found in all countries. Second, metric invariance implies that the same measurement unit applies across countries, however, with different origins. For the testing of metric invariance, we set the factor loadings to be equal among countries (Model 2, see Dimitrov, 2010). Metric invariance “ensures that items and latent factors have equal meaning across different groups or populations” (Carolla et al., 2012, p.229) and, hence, means that one can compare differences on the scales between people in different countries, though it is not sufficient to allow a comparison of absolute scores. Third, the scalar invariance assessment requires constraining the latent means of the scales in each country to be equal (Dimitrov, 2010), as we show in Model 3. Scalar invariance means that the same measurement unit and same origin exist in all countries, so the scale scores can be compared across people within and across countries.

If full metric or scalar invariance cannot be established, partial metric or partial scalar invariance might exist. Such partial invariance implies that for a subset of items invariance

exists; for that subset, a valid comparison across cultures is possible. The detection of invariant items can be also educational; it provides a unique perspective into how different cultures respond to or perceive constructs (Carrola et al., 2012). We compare the nested models (Models 1-3) by subtracting the respective goodness-of-fit values and degrees of freedom of the more restricted model from the less restricted model, using a chi-square difference test. If not significant, this test indicates that the model meets the criterion to reach the next level of invariance. Because its performance depends on non-normality and sample sizes, we use a recently proposed correction (Satorra & Bentler, 2010) to compare the models (Chou, Bentler, & Satorra, 1991; Curran, West, & Finch, 1996), and we rely on additional goodness-of-fit indices as recommended by Steenkamp and Baumgartner (1998), who indicate five alternative fit indices: root mean square error of approximation (RMSEA), consistent Akaike information criterion (CAIC), comparative fit index (CFI), and Tucker-Lewis index (TLI) or non-normed fit index (NNFI). These indices account for both goodness of fit and model parsimony by imposing a penalty on additional parameters. As suggested, in case of non-normality, we use NNFI instead of TLI.

4. Results

Measurement Invariance of the CBS

We start by estimating the configural invariance model for the CBS (Model 1), whose fit is inadequate. Although the CFI and NNFI values are at least .97 (CFI = .98, NNFI = .97), the chi-square value is significant ($df = 56$, $SB \chi^2 = 121.39$, $p < .05$), and the RMSEA value is moderate (.093). Moreover, we find three problematic items in the CBS. The t-value of the factor loading of item 5 (“Bought myself something in order to make myself feel better”) is not significant in the Netherlands.¹ This item also produces low standardized factor loadings (from .20 in the Netherlands to .58 in Turkey) and low construct reliability measures (from .04 in the Netherlands to .33 in Turkey). Furthermore, the factor loadings of item 7 (“Made only the minimum payments on my credit cards”) are very low and insignificant in Russia (.05) and Spain (-.03), but both these loadings are high in Turkey (.78) and the Netherlands (.77). Finally, our respondents generally disagreed or strongly disagreed with item 4 (“Wrote a check when I knew I didn’t have enough money in the bank to cover it”). This item’s mean thus falls below 2, and its standard deviation is very low in all countries, so this item is not informative. Because we cannot establish even configural invariance for the CBS, we do not proceed with any further analyses for this instrument.

Measurement Invariance of the CBI

The CBI originally appeared as a second-order factor model (Ridgway et al., 2008), which requires two supplementary considerations to perform measurement invariance tests (Chen, Sousa, & West, 2005): (1) metric invariance (equal factor loadings) for

¹ These results are available upon request.

both the first- and second-order factors and (2) scalar invariance (equal intercept) for both the measured variables and first-order factors.

TABLE 3. Comparative Fit of Tested Models for the CBI Scale

| Model | df | SB- χ^2 | RMSEA | NNFI | CFI | CAIC | Models compared | Δ df | Δ SB- χ^2 | Δ CFI |
|--|----|--------------|-------|------|------|--------|-----------------|-------------|-----------------------|--------------|
| CBI | | | | | | | | | | |
| Model 1: Configural invariance (baseline model) | 32 | 46.95* | .059 | .993 | .996 | 426.40 | - | - | - | |
| Model 2: Measurement (Metric) invariance | 44 | 173.58** | .148 | .954 | .944 | 465.47 | 2&1 | 12 | 126.63* | .052 |
| Model 2.1: Partial metric invariance; not for items 3&2 (baseline) | 38 | 65.18** | .073 | .989 | .993 | 400.85 | 2.1&1 | 6 | 18.23 | .003** |
| Model 2.2: Partial equal second-order loadings | 44 | 157.06** | .138 | .960 | .971 | 448.95 | 2.2&2.1 | 6 | 91.88** | .025 |
| Model 2.3: Partial equal second-order loadings for the impulse buying dimension (baseline) | 41 | 70.17** | .073 | .989 | .992 | 383.94 | 2.3&2.1 | 9 | 4.99 | .004** |
| Model 3: Weak partial scalar invariance | 47 | 120.24** | .108 | .976 | .981 | 390.24 | 3&2.3 | 6 | 50.07** | .011 |

Notes: SB χ^2 = corrected Satorra-Bentler Chi-square statistic; NNFI = non-normed fit index; CFI = comparative fit index; CAIC: consistent Akaike information criterion.

*Significant at .05. **Significant at .01.

We assess the configural invariance by imposing the baseline model on all the four country samples simultaneously (see Model 1, Table 3). The fit of the baseline model is adequate; the chi-square value is moderately insignificant (SB $\chi^2 = 46.95$, $p > .01$), the RMSEA value is low (.059), and the CFI and NNFI values are greater than .97 (CFI = .996, NNFI = .993). We therefore conclude that the CBI scale exhibits configural invariance across all the four countries. We then assess metric invariance by comparing a model with equal first-order loadings (Model 2) against the baseline model (Model 1). According to Table 3, this restriction leads to a significant increase in chi-square (Δ df = 12, Δ SB $\chi^2 = 126.63$, $p < .05$). The RMSEA increases to .15, and the decreases in the other goodness-of-fit statistics are larger than .01. Because the null hypothesis of full metric invariance of all first-order loadings thus is rejected, we continue with partial metric invariance tests. From a series of tests in which we sequentially relax the constraints, we conclude that the fit of Model 2.1 (all first-order factor loadings set to be equal except for items 2 and 3) is not significantly worse than the fit of Model 1 (Δ df = 6, Δ SB $\chi^2 = 18.23$, $p > .01$). Its RMSEA is also acceptable (.07), and the decreases in NNFI and CFI are less than .01. The two problematic items that hinder invariance belong to the obsessive-buying dimension; therefore, we suspect that the second-order factor loading of obsessive-buying should differ across countries. We compare Model 2.2 and Model 2.1 and find that Model 2.2 has a significantly worse fit than Model 2.1 in terms of both the chi-square (Δ df = 6, Δ SB $\chi^2 = 91.88$, $p < .01$) and the alternative statistics: the RMSEA increases to .14, and

the other goodness-of-fit statistics decrease by more than .01. When we only restrain the second-order factor loading of the impulse-buying dimension (Model 2.3), we find no worse fit than Model 2.1 ($\Delta df = 9$, $\Delta SB \chi^2 = 4.99$, $p > .01$; RMSEA = .07, $\Delta NNNFI$ and $\Delta CFI < .01$). Our results thus show that all first-order item loadings except those for items 2 and 3 and the second-order impulse buying loading achieve metric invariance across the four countries, in support of the partial metric measurement invariance of the CBI.

Finally, we examine its partial scalar invariance by constraining the intercepts of the equal factor loadings, then comparing Model 3 (equal error variances of the equal item loadings and second-order impulse buying factor) against Model 2.3. We find a significant increase in chi-square ($\Delta df = 6$, $\Delta SB \chi^2 = 50.07$, $p < .01$), and the goodness-of-fit measures confirm that partial scalar invariance cannot be established (RMSEA = .108, $\Delta CFI > .01$).

In summary, we confirm configural and partial metric measurement invariance for the CBI. The items in the impulse-buying dimension are measurement invariant across four distinct countries; we do not find invariance for the items in the obsessive-buying dimension though. Whereas we could not establish configural invariance for the CBS, the CBI is partially measurement invariant. With to regard the CBI, we can assess the relationships of the CBI with other constructs in a nomological network and thus explore its criterion validity.

Criterion validity of the CBI

Because the CBI has never been used in countries other than the United States, it is important to assess its criterion validity, in addition to its invariance. To do so, we computed correlations between the consequences of compulsive buying and its subscales to indicate the scale's predictive ability. We selected behaviors that Ridgway et al. (2008) call relevant to compulsive buying: hiding, guilt feelings, family arguments, and frequency of shopping trips. In addition, we included the number of pairs of shoes owned and the degree of financial difficulty suffered (Black, Monahan, & Gabel, 1997). We report the results for the obsessive-compulsive and impulsive buying dimensions of CBI separately. As the consequence variables (see Table 4) are ordinal or binary, we used Spearman's rho to measure their relation to the CBI. We also used a t-test to determine if people who hide their purchases, feel guilty, or face family arguments (all yes/no) because of their shopping behavior score significantly higher on the obsessive-compulsive and impulsive buying dimensions than do others. The results for the t-test and Spearman's rho are very similar; we therefore only discuss the latter outcomes.

As shown in Table 4, most variables are significantly and highly correlated with the CBI, and in the expected direction. Frequency of shopping trips and financial difficulty correlate positively with both dimensions of the CBI across all the four countries; we find a consistently stronger relation with the obsessive-compulsive buying dimension though. The correlation between number of pairs of shoes owned and both CBI dimensions are also positive, except in Russia, which shows very low

TABLE 4. Relations Between the CBI Scale and Consequences of Compulsive Buying

| Consequences | | The Netherlands | | Spain | | Russia | | Turkey | |
|-----------------------------|--------------|----------------------|-----------|----------------------|-----------|----------------------|------------------|----------------------|-----------|
| | | Obsessive-compulsive | Impulsive | Obsessive-compulsive | Impulsive | Obsessive-compulsive | Impulsive buying | Obsessive-compulsive | Impulsive |
| | | buying | buying | buying | buying | buying | buying | buying | buying |
| Hiding | Spearman rho | .29** | .24* | .30** | .34** | .26** | .24** | .09 | .15 |
| | mean (yes) | 3.35 | 4.54 | 3.64 | 4.74 | 2.56 | 3.47 | 2.46 | 3.35 |
| | mean (no) | 1.95 | 3.22 | 2.31 | 3.39 | 1.75 | 2.63 | 2.34 | 2.95 |
| | t-value | 3.24** | 3.13** | 4.17** | 4.50** | 3.58** | 3.24** | 0.37 | 1.25 |
| Guilt | Spearman rho | .35** | .35** | .23** | .34** | .27** | .35** | .12 | .16 |
| | mean (yes) | 2.99 | 4.41 | 3.19 | 4.49 | 2.58 | 3.80 | 2.67 | 3.33 |
| | mean (no) | 1.85 | 3.05 | 2.37 | 3.32 | 1.96 | 2.67 | 2.23 | 2.95 |
| | t-value | 3.25** | 4.11** | 2.64** | 4.27** | 2.51* | 4.20** | 1.37 | 1.18 |
| Family arguments | Spearman rho | .18 | .14 | .33** | .40** | .09 | .09 | .01 | .10 |
| | mean (yes) | 2.24 | 3.54 | 3.76 | 4.99 | 2.37 | 3.33 | 2.43 | 2.86 |
| | mean (no) | 2.00 | 3.08 | 2.31 | 3.34 | 2.05 | 2.93 | 2.30 | 3.22 |
| | t-value | -.71 | 1.41 | 4.51** | 5.59** | 1.26 | 1.35 | -0.40 | 1.18 |
| Pair of shoes owned | Spearman rho | .39** | .36** | .38** | .40** | .12 | .10 | .33** | .17* |
| Frequency of shopping trips | Spearman rho | .63** | .47** | .32** | .38** | .37** | .48** | .48** | .38** |
| Financial difficulty | Spearman rho | .55** | .31** | .72** | .60** | .67** | .51** | .63** | .60** |
| Means of dimensions | Means | 2.78 | 3.40 | 3.24 | 3.78 | 2.62 | 3.07 | 2.73 | 3.08 |
| Reliability | Alpha | .91 | | .92 | | .88 | | .88 | |

*Significant at .05. **Significant at .01.

correlations with both dimensions ($\rho=.12$ and $\rho=.10$) that are not significantly different from 0.

The biggest differences arise with respect to the three consequences: hiding, guilt, and family arguments. Hiding exhibits a positive correlation with the CBI in Spain, Russia, and the Netherlands (on average $r = .28$ for the obsessive-compulsive buying and $r = .27$ for the impulsive buying dimension); however, both dimensions of CBI turn out to be not correlated to hiding in Turkey. Guilt is significantly correlated with CBI in Spain, Russia, and the Netherlands (on average $r = .28$ for the obsessive-compulsive buying and $r = .35$ for the impulsive buying dimension). Finally, family arguments only show a significant relation with CBI in Spain ($r = .33$ for obsessive-compulsive dimension; $r = .40$ for impulsive dimensions). An explanation for these differences may be that the three consequences are strongly influenced by cultural expectations and norms for shopping. We elaborate on this further in the discussion section.

5. Discussion

Shopping beyond one's income and living in a state of debt has become normal for many people, not only in developed countries, but also in emergent countries. Increasing numbers of people are unable to control their excessive spending and often end up in debt. Compulsive buying and its consequences undermine people's personal relationships and well-being. In the United States, debt tops 16 trillion, total household debt currently stands at \$11.44 trillion; this amounts to an average of \$98,500 per household, whereas an average American owes \$47,500 (Federal Reserve Bank of New York, 2012). This debt situation is not an exclusively Western phenomenon; similar

debt situations have been reported from non-Western countries. Therefore, policy makers need to be aware of danger and should take necessary precautions worldwide. Based on the research findings, we recommend establishing some programs for young adults to build skills to counter financial problems; developing school programs for financial planning education; offering financial counseling, free of charge, by banks in emerging countries similar to developed countries.

Measurement of compulsive buying behavior

We have investigated whether two compulsive buying scales (CBI and CBS) exhibit measurement invariance in countries that vary in their level of affluence and differ in culture. Compulsive buying scales were developed and validated in the U.S. and Canada, but no research has determined if these scales also are valid in other cultures. Furthermore, research in different countries and cultural contexts can provide novel insights into the phenomenon and help clarify how socio-cultural factors influence compulsive buying. This interesting research area unfortunately has been developing at a very slow rate thus far (Neuner et al., 2005; O'Guinn & Faber, 2005).

Cross-cultural comparability requires that the scales are at least partial metric measurement invariant. In our study, we establish partial metric measurement invariance for the CBI, however, the CBS does not even have configural invariance. One of the problematic items for the CBS concerns credit card usage. Problems with this item also have been reported in a previous study by Kwak, Zinkhan, and Crask (2003) in Korea. It is likely that this item lacks functional invariance (Van Herk, Poortinga, & Verhallen, 2005), as card ownership and usage varies greatly across countries. In many countries, credit cards are much less common and more regulated than in the United States. An average U.S. consumer owns 4.6 credit cards (Board of Governors of the Federal Reserve System, 2007), whereas in Europe, this average is only 1.5 (ECB, 2009). The lack of invariance of the CBS might also reflect the socio-cultural context. Banks and retailers in some countries do not encourage credit card use and social norms might discourage unnecessary spending and as a consequence lower acceptance of buying on credit. Accordingly, the lack of configural invariance for the CBS likely results from items that are too context specific and that thus lack functional invariance.

Although the CBI is configural invariant, only the items in the impulse-buying dimension exhibit metric invariance across the four countries. We had to remove items such as being a “shopaholic” or a “life centered around shopping” to obtain metric invariance. The first one (others might consider me as a “shopaholic”) was hard to translate into other languages, so its lack of invariance might be due to a translation bias. The second item (‘much of my life centers around buying things’) might reflect the gender role of women in these four countries, as we discuss subsequently.

Cultural differences affecting compulsive buying behavior

We included three main consequences of compulsive buying in our study: family arguments, hiding, and guilt. The family arguments item relates positively and significantly to compulsive buying only in Spain. In neither Russia nor Turkey family

arguments turned out to be related to compulsive buying. This result might be explained in two ways. First, the latter two countries score higher on embeddedness (Schwartz, 2006) and, as argued by Kacen and Lee (2002), the compulsive buying tendency might result in less compulsive buying behavior in such countries. The second explanation may be the prevailing gender roles in these countries: the gender equality index (UNDP, 2010) indicates more traditional gender roles in Russia (.44) and Turkey (.62), compared with Spain (.28) and the Netherlands (.17), and, therefore, (extensive) shopping might be a more accepted activity for women within Russian and Turkish society. Moreover, a recent study by Ergin (2010) on compulsive buying in Turkey reveals that traditional gender roles are a primary reason for women in Turkey to engage in shopping activities. This study also finds that Turkish women prefer to shop as a key reaction to negative feelings such as boredom, stress, low self-esteem, or even depression, because shopping is accepted as a woman's role. Thus, when female shopping behavior has high social acceptability, compulsive buying might not provoke family arguments (e.g., Rook & Fisher, 1995).

Another interesting finding is that hiding and guilt relate positively to CBI in the Netherlands, Spain, and Russia, but not in Turkey. This might be explained by cultural differences in facing feelings of guilt and shame (Creighton, 1990). In more autonomous countries (e.g., Faber & O'Guinn, 2008), a positive relationship between compulsive buying and guilt might be expected. In such countries, people develop their own standards of conduct and are less influenced by tight social controls; being unique is valued. When engaging in behaviors, people in autonomous countries compare their actions against their own internalized standards; if they violate these standards, they feel guilt (Bierbrauer, 1992). For instance, the idea of collective guilt is deeply rooted in Protestant (Calvinist) cultures (Baskerville, 1996), such as the United States or the Netherlands. In these countries guilt correlated significantly and positively with CBI. Fewer guilt feelings are expected to arise in embedded societies (such as Turkey, which is the most embedded of the 4 countries), which feature tight social controls and where people compare their actions against social norms. If people in an embedded society do not comply, they are criticized by close others and thus feel shame, not guilt.

To sum up, CBI is a configural invariant and its items in the impulse-buying dimension exhibit metric measurement invariance across the four countries we investigated. We find evidence of criterion validity and also observe that the way a culture views both impulsive behavior and gender-specific behavior directly influences the consequences compulsive buyers may face.

Limitations and further research

We acknowledge some limitations of this study. First, we used female respondents, to ensure comparable samples across countries. We recommend the inclusion of both genders, more and more diverse countries, as well as more individual-level variables, such as cultural values (Schwartz, 1992), personality (Allik & McCrea, 2004), or self-construal (Markus & Kitayama, 1991). Multilevel analyses (Van de Vijver, Van Hemert,

& Poortinga, 2008), including country as well as individual characteristics might provide a more holistic view of compulsive buying.

Second, although we used a set of known consequences of the compulsive buying behavior, we did not investigate closely why there are differences in the relationship between the CBI and the consequences across cultures. Therefore, further research is warranted on why the strength of the relationship between the compulsive buying trait and compulsive buying consequences and behavior differ among cultures. The factors moderating the trait-behavior relationship need to be uncovered. These factors can be (a) normative beliefs, (b) self-construal, and (c) peer presence. Rook and Fisher (1995) find that in the non-embedded U.S. culture, normative beliefs moderate the relationship between the impulse buying trait and buying behaviors, but not between the compulsive buying trait and buying behaviors. In their study on impulse buying across countries, Kacen and Lee (2002) find that individuals' self-construal (interdependent or independent) affects the strength of the relationship between the impulsiveness trait and the impulsive behavior. One interesting avenue for future research is to uncover the extent to which within-culture differences in normative beliefs or self-construal can explain compulsive buying tendencies.

Another interesting avenue for further research is to uncover the role of other people (e.g., peers) in engaging in compulsive behavior. A study by Zhang and Shrum (2009), using student samples in the U.S., showed that individuals with an interdependent self-construal tend to display less impulsive tendencies than students with an independent self-construal; peer presence enhanced the effect for the independents, whereas it depressed the effect for the interdependents. What still needs to be uncovered is whether the effects are the same in a consumer setting, what the role of the cultural context is, and to what extent the peers' characteristics (and gender in particular) matter. Thus, further research across cultural contexts on the factors affecting the strength of the compulsive buying trait-behavior relationship is warranted.

Implications for research

As we failed to establish configural invariance of the CBS, we recommend that researchers interested in understanding cross-cultural problems, such as how cultural aspects influence the development and prevalence of the compulsive buying disorder in a culture, should refrain from relying on this measure. We find that the CBI is better suited for this purpose. Of the two dimensions of the CBI, the dimension on compulsive buying is a configural invariant and the dimension on impulsive buying is a metric invariant. This implies that people in culturally different countries conceptualize both dimensions of the CBI the same way. Additionally, for the impulsive buying dimension, variances, co-variances, and regression coefficients relating factors can be compared across cultural groups. So, the impulsive buying dimension of the CBI is appropriate to investigate the antecedents and consequences of compulsive buying in cross cultural contexts. Comparisons between the absolute scores on the scale between people from different countries, however, cannot be made nor can universally determined cut-off points separate compulsive buyers from non-compulsive buyers.

Scales are often developed in one country without consideration for cross-cultural comparability. These scales are often routinely exported from the country in which they were developed to other places without alterations and without checking whether the scale is applicable in the other country. At the same time, international researchers in the social sciences have been focusing on how to develop cross-culturally comparable measures. Ever since Berry's (1969) seminal article, they have argued that country-specific ("emic") items might have to be added to or replace cross-nationally standardized ("etic") items when developing valid instruments. Recent advances in scale development provide models that allow for emic items while retaining cross-national comparability (see De Jong, Steenkamp, & Veldkamp, 2009). Such scales might be useful to assess compulsive buying tendencies, not only in international contexts, but also in the various ethnically heterogeneous populations within Western countries. We, therefore, recommend researchers in the area of compulsive buying to rely on these models when developing cross-culturally comparable valid scales for compulsive buying.

Implications for the society

Compulsive buying scales have a broad user base, including not just consumer researchers but also psychologists, therapists, and public policy makers. The CBI can be used for this purpose because it turns out to be a partially metric invariant, hence, its items have the same meaning in the different cultures/societies and possess the same measurement unit across countries. The scale can be especially useful to check people's compulsive buying tendencies in different countries. Our results illustrate that employing frequently used CBS in new cultural groups is inappropriate and may lead to biased results and deficient classifications, which waste time and resources. To measure compulsive buying tendencies, the CBI can be validly used within a culturally different context.

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